APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,540	11/27/2000	Bernd Michaelis	000432	6401

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WILLIAM COLLARD
COLLARD & ROE, P.C.
1077 NORTHERN BOULEVARD
ROSLYN, NY 11576

EXAMINER
STREGE, JOHN B

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 June 2007_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,4,5,7,8,10 and 11_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,4,5,8,10 and 11_ is/are rejected.

7)☒ Claim(s) _7_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 November 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/07

has been entered.

Response to Amendment

2.   The amendment received 6/18/07 has been entered in full.

Response to Arguments

3.   Applicant's arguments filed 6/18/07 have been fully considered but they are not

persuasive. The Applicant argues that Goto couples RGB values, but not different

pixels. The Examiner respectfully disagrees. RGB values are pixel values (col. 3 lines

30-35 disclose that the color scanner is capable of producing a RGB signal with 256

levels for each of the red, green, and blue signals). As seen in figure 3, Goto discloses

spatially coupling pixel values of color channels (RGB) via space variant weights. Goto

does not explicitly disclose a mono-layered neuronal network however as discussed in

the previous office action for claim 6, Krell discloses this (discussed further in the

rejection below). Thus the combination of Goto and Krell together disclose spatially

coupling the pixel values of color channels by mono-layered neuronal networks via

space-variant weights.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1,8, and 10-11 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Goto USPN 5,774,230 in view of the publication "An Artificial Neural

Network for Real-Time Image Restoration" Krell et al. (hereinafter "Krell", cited in a

previous action).

Claim 1 discloses "a method of defining and at least partially correcting errors of

an image reproduction system, said errors being deviations between an image of

predetermined quality and its reproduction, such errors being caused by defects in the

image reproduction system" Goto discloses a color image reproduction system that

corrects the color signals of a reproduced image in order to maximize the correlation

between an original and a copied image (Fig. 6) (as stated at least in the abstract and

col. 1 lines 6-9, and col. 2 lines 18-23). Goto discloses that when reproducing a color

image there is a problem that it hardly renders exactly the same colors as those of the

original image even when input image data are supplied to the output means intact (col.

1 lines 17-20). This is a type of error caused by deviations between an image of

predetermined quality and its reproduction which is caused by defects in the

reproduction system (they are defects because they can not accurately reproduce the

colors). To overcome this problem Goto discloses correcting these errors (col. 2 lines 18-23).

Claim 1 further discloses spatially coupling the pixel values of color channels by mono-layered neuronal networks via space-variant weights. Goto discloses in figure 3 spatially coupling the pixel values of color channels using a neuronal network via space-variant weights. Goto does not explicitly disclose that the neuronal network is mono-layered, however as discussed below it would have been obvious to one of ordinary skill in the art at the time of the invention to use a mono-layered neuronal network.

Claim 1 further discloses that the method comprises "determining the parameters of a neuronal net by a learning process utilizing the image captured by an image recording device of a reproduced test image of predetermined quality as a learning pattern." Goto discloses a neural network that uses a scanned image of predetermined quality to enable the neural network to learn (S7 and S8 of Fig. 2)(as stated at least in col. 4 lines 61-65).

Claim 1 further recites " feeding data representative of an image to be reproduced to the neuronal net as target data." Goto discloses that the neural network receives a signal of an original image and converts it into a color-corrected signal in a manner to approximate the colors of the copy image to those of the original image (Fig.1) (col. 3 lines 43-49).

Finally claim 1 discloses, "operating an image forming device on the basis of the data processed by the neuronal net implemented by a computer or a specific circuit." Goto disclose an output device (3 Fig. 1) that reproduces the original image on the

basis of the color correction device that contains the neural net discussed above (2

Fig.1), furthermore it is inherent that a neuronal net must be implemented on a

computer or specific circuit.

Goto does not explicitly disclose that the neuronal network is mono-layered.

Krell discloses "forming an array of restoring neurons to a single-layer neural

network results in the correcting spatial filter as shown in Fig. 5a" (third paragraph of

section II. The Correcting ANN). This allows for faster processing of the neuronal

network.

Goto and Krell are analogous art because they are from the same field of

endeavor of neural networks.

At the time of the invention it would have been obvious to combine Goto and

Krell in order to use a mono-layered neuronal network. The motivation would be to

make a neural network that processed faster. Thus it would have been obvious to one

of ordinary skill in the art to combine Goto and Krell to obtain the invention as specified

in claim 1.

Claim 8 is similarly analyzed to claim 1.

Regarding claim 10, at the time the invention was made, it would have been

obvious to a person of ordinary skill in the art to have the forming quality of an image

recording device be superior to that of the image reproducing quality. The motivation for

doing this would be to compensate for the loss of quality when making a reproduced

image from an original.

Regarding claim 11, Goto discloses that the error classes both spatial and pixel related are corrected simultaneously (see numeral 32 of figure 6).

6.   Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view Krell, and further in view of Eouzan et al US Patent 5231481 (hereinafter Eouzan). Claim 4 discloses "the method of claim 1, wherein the neuronal net is trained by data produced by an image recording device capturing an uncorrected reproduced test image provided by the image forming device and wherein the target data is derived from digitized data of the original image to be reproduced." As discussed above Goto discloses all of the limitations of Claim 1. It further states "the neural network receives a RGB signal of an original image and converts the same into a color-corrected CMY signal of a copy image in such a manner to approximate the colors of the copy image to those of the original image" (col. 3 lines 45-47).

Goto does not explicitly state that the digitized image to be reproduced is an uncorrected image derived from the image-forming device.

Eouzan discloses a method of correcting a projected image by using a camera to take an uncorrected digitized test image derived from the projector image and processing it in order to correct the image (col. 2 lines 41-46).

Goto and Eouzan are analogous art because they are from the same field of endeavor of correcting image data.

At the time of the invention it would have been obvious to someone skilled in the art to combine Goto with Eouzan by capturing an image to be corrected and feeding it to

a neural net for correction. The motivation for doing so would be to create a system

which corrects the coloring of an output image forming device utilizing the efficiency and

accuracy of a neural network in order to better reproduce the desired color of the

original image.

Claim 5 discloses "the method of claim 1, wherein the parameters of the neuronal

net are values derived from an image forming system the quality of image formation of

which corresponds to the image forming quality of the image forming system to be

corrected if the errors to be corrected are larger than device by device variances of the

image defects to be corrected." With regard to claim 5 Eouzan discloses "the use of a

video camera having a resolution that is as high as the projected image" (col. 6 lines 13-

15).

Allowable Subject Matter

7.   Claim 7 is objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John B. Strege whose telephone number is (571) 272-

7457. The examiner can normally be reached on Monday-Friday between the hours of

8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JS

BHAVESH M MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600